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March 1, 1995

William F. Caton  
Acting Secretary  
Federal Communications Commission  
1919 M Street, N.W., Room 222  
Washington, D.C. 20554

Dear Mr. Caton:

Please accept these Comments as a corrected version of the comments filed earlier today.

Please contact me if you have any questions regarding this filing.

Sincerely,



Sari Zimmerman

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Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 20554

FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF THE SECRETARY

In the Matter of )  
 )  
Amendment of Parts 2 and 15 ) ET Docket No. 94-124  
of the Commission's Rules to Permit ) RM-8308  
Use of Radio Frequencies Above 40 GHz )  
for New Radio Applications )

To: The Commission

REPLY COMMENTS OF  
ASSOCIATION OF AMERICAN RAILROADS

The Association of American Railroads ("AAR"), by its attorneys and pursuant to Section 1.415 of the rules of the Federal Communications Commission ("the Commission"), hereby submits its Reply Comments in response to the Notice of Proposed Rule Making ("NPRM") in the above-referenced proceeding.

**I. PRELIMINARY STATEMENT**

AAR is a voluntary, non-profit organization composed of member railroad companies operating in the United States, Canada and Mexico. The AAR is the joint representative and agent of these railroads in connection with federal regulatory matters of common concern to the industry as a whole, including matters pertaining to regulation of communications. In addition, AAR serves as the frequency coordinator with respect to the operation of land mobile and other radio-based services.

AAR has reviewed the comments submitted in response to the Commission's proposal to open for commercial development and use a portion of the millimeter wave frequency bands above 40 GHz. AAR believes the Commission's proposals and some of the ideas of the commenting parties may offer potential long term opportunities and advantages for the railroads, their customers and the American public.

The U.S. railroad industry deploys and depends on a sophisticated and comprehensive inter-related radio communications network consisting of both mobile and fixed point to point communications systems and facilities. With regard to fixed communications facilities, the railroads use private microwave systems to monitor and control more than 1.2 million freight cars on more than 215,000 miles of track. For example, microwave systems carry information used to transmit train signals and remotely control switching of tracks necessary for safe routing of trains through depots and freight yards. These systems also relay critical telemetry data from trackside defect detectors located throughout the rail network. Information about damaged rails and overheated bearings is automatically transmitted from these detectors via mobile radio links to engineers who can then act to prevent disastrous derailments, and via fixed microwave links to dispatchers in distant locations, who are required to know that status of the equipment along the routes for which they are responsible. Microwave systems are vital to coordination of operations among different railroads.

The railroad industry is interested in innovation, expansion and planning for the future for the twofold purpose of increasing productivity and enhancing safety. To further these goals, AAR is a member of the ITS Architecture Task Force which is working in concert with the U.S. Department of Transportation and the Intelligent Transportation Society of America to develop an Intelligent Transportation System (ITS) backbone for the nation.<sup>1/</sup> The goal of these efforts is to produce a nationally compatible intelligent transportation system that will improve safety, reduce congestion, enhance mobility, minimize environmental impact, save energy and promote economic productivity in our national transportation system.

AAR believes that the frequency bands above 40 GHz offer opportunities and potential for development in many of the areas highlighted by the ITS effort. Admittedly, there are some limitations inherent in the propagation characteristics of these bands, as the Commission readily acknowledged in the NPRM:

The propagation of millimeter wave radio signals is more limited than that of radio signals at lower frequencies. Signals in the millimeter wave bands are significantly affected by the presence of oxygen and water vapor within the atmosphere. Absorption and scattering caused by oxygen and water vapor limit the range of millimeter wave transmissions to a few kilometers regardless of the power used.<sup>2/</sup>

Despite these propagation limitations, however, AAR believes in the potential for these bands and supports the prospect of

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1/ ITS Architecture Development Program: Phase I Summary Report, Department of Transportation and ITS America, November 1994, p.8.

2/ NPRM at 4.

commercial exploitation of this portion of the spectrum. The current research into collision avoidance mechanisms and the existing commitment by the manufacturing community to develop new technology to be used by the nation's transportation systems will both gain added impetus from this proposal by the Commission.

**II. AAR ENDORSES THE PROPOSALS CONTAINED IN THE COMMENTS FILED BY THE TELECOMMUNICATIONS INDUSTRY ASSOCIATION**

AAR has reviewed with interest and endorses the comments filed by the Fixed Point-to-Point Communications Section of the Telecommunications Industry Association (TIA) with respect to the four topics discussed below.

**A. The Commission Should Allocate the 48.5-51.4 GHz and 55.2-58.2 GHz Bands to Fixed Point-to-Point Microwave.**

Allocation of the 48.5-51.4 GHz and the 55.2-58.2 GHz bands for exclusive use by private and common carrier fixed point-to-point microwave users will further international coordination by aligning U.S. with international allocations.<sup>3/</sup> Equivalencies in international standards will promote the use abroad of American technology operating above 40 Ghz.

This allocation to existing fixed microwave users would also provide an important and equitable counterweight to the Commission's current emphasis on high bandwidth and new services. As former Commissioner Duggan pointed out in the proceedings concerning the emerging technologies, "In our eagerness to

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<sup>3/</sup> These bands are currently allocated by the European Conference of Post and Telecommunications Administrations ("CEPT") for fixed point-to-point use.

encourage and promote exciting new technologies, the Commission must not overlook the needs of equally important existing communications service providers."<sup>4/</sup>

**B. The Commission Should Provide for the Establishment of a Guardband Between the Proposed Licensed Uses and the Proposed Allocation to Private and Common Carrier Fixed Users.**

In order to facilitate the proposed allocation to the fixed microwave users, it will be necessary to accommodate the need at these high frequency bands for a margin for signal selectivity. The TIA Comments, therefore, propose to (1) eliminate the 47.2-47.4 GHz allocation for unlicensed vehicular radar systems and reallocate that 200 MHz for such radar systems to anywhere in the 45.0-47.0 GHz band; and (2) move the 800 MHz to be allocated for licensed use from 47.4-48.2 GHz to 47.2-48.0 GHz. These changes are required to provide a 500 MHz guardband between the proposed licensed uses and the proposed private and common carrier fixed point-to-point microwave allocation starting at 48.5 GHz.

**C. These Bands Should be Subject to Proposed Part 101 and Should be Exempt from Auctions.**

To promote uniformity and streamlined procedures, these bands should be placed within the regulatory framework being established in the proposed Part 101 of the Commissions rules.<sup>5/</sup>

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<sup>4/</sup> Redevelopment of Spectrum to Encourage Innovation in the Use of New Telecommunications Technologies, First Report and Order and Third Notice of Proposed Rule Making, 7 FCC Rcd 6886, 6902 (1992) (Separate Statement of Commissioner Ervin S. Duggan).

<sup>5/</sup> Reorganization and Revision of Parts 1, 2, 21 and 94 of the Rules to Establish a New Part 101 Governing Terrestrial Microwave Fixed Radio Services, Notice of Proposed Rulemaking in WT Docket No. 94-148 (Released December 28, 1994).

Moreover, as the Commission has acknowledged in other proceedings, the private fixed microwave users must be exempt from auctions.<sup>6/</sup> Private users do not fall within the category of services eligible for auction as specified in Section 309 of the Communications Act.<sup>7/</sup> By definition, private users do not make use of the spectrum in order to sell to subscribers but rather make use of the spectrum for internal operational purposes. Furthermore, auctioning these bands would also effectively preclude national interoperability since channel blocks would be awarded to different parties in each MTA. Because railroad communications equipment must be interoperable on a nationwide basis, uniformity of operating conditions and standards is essential.

**D. Improved Spectrum Sharing Between Private and Government Users is Necessary**

Currently, existing spectrum sharing arrangements between the government and private users hinder efficient and maximum use of the spectrum. The Commission should establish formal procedures to improve spectrum sharing between the government and the private sector including, at a minimum, reducing the time needed to coordinate frequencies between government and private users. Private users rely heavily on frequency coordination efforts. Instituting similar procedures for coordination between

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<sup>6/</sup> Implementation of § 309(j) of the Communications Act - Competitive Bidding, Second Report and Order, 9 FCC Rcd 2348 (1994).

<sup>7/</sup> 47 U.S.C. § 309(j) (1994).

government and private users will promote effective spectrum management.

### **III. CONCLUSION**

While AAR recognizes the difficulties inherent in the development of spectrum above 40 GHz, it applauds the Commission's farsightedness in clearing the path to facilitate and encourage the introduction of new technologies. AAR supports the Commission in this effort and specifically endorses the above-described proposals of the Telecommunications Industry Association. AAR's members rely heavily on radio-based communications systems and are eager to explore the potential for further development of these systems for enhancing the safety and productivity of railroad operations. Successful commercial development of these bands in alignment with international allocations will set the U.S. apart as a leader in new technology, which has the potential for improving the transportation infrastructure of the nation in the decades to come.

Respectfully submitted

**ASSOCIATION OF AMERICAN RAILROADS**

By: 

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